ABSTRACT

A system for characterizing periodic structures formed on a sample on a real time basis is disclosed. A multi-parameter measurement module generates output signals as a function of either wavelength or angle of incidence. The output signals are supplied to a parallel processor. The processor creates an initial theoretical model and then calculates the theoretical optical response of that sample. The calculated optical response is compared to measured values. Based on the comparison, the model configuration is modified to be closer to the actual measured structure. The processor recalculates the optical response of the modified model and compares the result to the measured data. This process is repeated in an iterative manner until a best fit is achieved. The steps of calculating the optical response of the model is distributed to the processors as a function of wavelength or angle of incidence so these calculations can be performed in parallel.